

those layers are shared between adjacent periods, and therefore have increased thickness. ("For example, the thickness of the first and seventh layers of the periods in the second stack is 968 Å. Thus, in Table 1, layer 25 is 1936 Å [i.e. 2×968]" thick. Krisl, col. 7 lines 16-19.

In view of the above, it is believed that the Examiner's rejections of claims 1 and 12 have been overcome, and it is respectfully submitted that these claims should now be allowable.

Claims 7-10 and 15 have been rejected under 35 U.S.C. § 103(a) for obviousness over Krisl. With respect to claim 9, the Examiner states at page 4, second-to-last paragraph of the Office action that "[i]t would have been obvious...to add more number of layers, since mere duplication of essential parts of the invention is considered within the skill of the art." This rejection is respectfully traversed. As disclosed in the specification, improvements in the performance of thin film systems have been limited by mechanical failure due to excessive tensile stress on the coating. The practical limit for the number of layers that can be added to the coating has historically been 46, above which the coatings would spall off the substrates due to increased stress. (See specification, page 2 lines 7-14). The Krisl patent discloses a coating structure having 5 additional layers, bringing the total to 51, but it is entirely silent regarding application of additional layers in a manner that overcomes the problem of failure due to increased stress.

The rejected claims recite numbers of layers being greater than 55, 60, 70 and 78 respectively. It is submitted that it would not have been obvious merely to add additional layers as suggested by the Examiner because, prior to the present invention, additional layers would (or were expected to) result in failure of the coating due to excessive coating stress. The inventors herein had the unique insight to recognize that the stress resulting from additional layers

could be reduced below the failure threshold by controlling the ratio of the overall thicknesses of the high index of refraction material layers to the low index of refraction material layers; and that by regulating this ratio, additional refractive layers could be added with the surprising result that stress-induced failure of the coating is avoided. (See specification, page 5 lines 18-26).

Therefore, it is believed that the rejection of claims 7-10 and 15 are overcome, and should now be allowable.

All remaining claims are dependent claims, and should be allowable as depending from an allowable base claim. It is therefore believed that all claims are now in condition for allowance, and notice to that effect is respectfully requested.

If there are any fees required by this communication, please charge such fees to our Deposit Account No. 16-1820, Order No. 32575.

Respectfully submitted,

PEARNE & GORDON LLP

By: 
Steven J. Solomon, Reg. No. 48719

526 Superior Avenue East
Suite 1200
Cleveland, Ohio 44114-1484
(216) 579-1700

Date: August 22, 2002

Marked Up Claims
Serial No. 09/645,225
Page 1 of 1

1. (amended) An optical interference coating for reflecting infrared radiation and transmitting visible light comprising alternating layers of high index of refraction material and low index of refraction material, wherein the total number of said layers is greater than 51, each of said alternating layers of high index of refraction material and low index of refraction material being a separate and distinct layer from adjacent layers.

12. (amended) An electric lamp comprising a light transmissive envelope containing an electric light source within, wherein at least a portion of said envelope is coated with an optical interference coating for reflecting infrared radiation and transmitting visible light radiation, said coating comprising alternating layers of high index of refraction material and low index of refraction material, wherein the total number of said layers is greater than 51, each of said alternating layers of high index of refraction material and low index of refraction material being a separate and distinct layer from adjacent layers.